

When first powered on, the internal microprocessor 24 sends electrical signals to test the operation of the arm 56, as indicated in item step 220. The microprocessor 24 sends a set of flags back to the computer software to signal the status of the hardware located on the copy unit 20, as indicated in item step 230. If the computer software receives a status flag indicating hardware failure, the computer software issues a display error message for the user to decode, and the copy process is terminated, as indicated in item step 240.

If the computer software receives status flags indicating the hardware is operational, the computer software sends instructions to the microprocessor that comprise a data acquisition subprocedure. The beginning of the data acquisition subprocedure is indicated in item step 250 and comprises item steps 260 through 340.

In item step 260, the computer software checks if a disk drive on the host computer contains an image of the master data. If an image file already exists, control of the software is transferred to item step 360. Otherwise, control of the computer software is transferred to item step 270.

As indicated in item step 270, the computer software first compares the number of disk drives to the number of master disks loaded on the master disk spindle member 53. If the number of stacked recordable disk drives 84 is greater than or equal to the number of master disks, the computer software sends a command set to the microprocessor 24 to transfer each master disk to an available stacked recordable disk drive 84, as indicated in item step 280.

The computer software then sequentially issues read commands to each stacked recordable disk drive 84 containing a master disk and transfers the source data from each master disk to the host computer 12. These commands are summarized in item step 290. Once the data transfer process is completed, the computer software sends a command set to the microprocessor to transfer each master disk back to the master output spindle 55, as indicated in item step 300, and the data acquisition subprocedure is complete.

If the number of stacked recordable disk drives 84 is less than the number of master disks, the computer software must loop through item steps 310 through 340 until all master disks have been transferred to an available stacked recordable disk drive 84.

This loop begins when the computer software sends a command set to the microprocessor 24 to transfer the maximum number of remaining uncopied master disks held by the input spindle from the master disk spindle member 52a to the stacked recordable disk drives 84, as indicated in item step 310. Then in item step 320, data is transferred from the master disks to the host computer 12 in the same manner as in item step 280.

After all data from the master disks loaded in stacked recordable disk drives 84 has been transferred to the host computer 12, the master disks are either transferred to the master output spindle 55, or are ejected onto the disk reject slide 92, as indicated in item step 330.

The computer software completes this loop as indicated in item step 340 by comparing the number of uncopied master disks with zero, and returning to the top of the loop at item step 310 if any uncopied master disks remain. Once the data acquisition subprocedure is completed, control of the computer software is transferred to the beginning of the data transfer subprocedure, indicated as item step 360.

At the beginning of the data transfer subprocedure, the computer software will, if necessary, reformat the image of the source data located on the hard drive of the host

computer to ensure optimal recording speed and accuracy. This computation is indicated in item step 370. A variable containing the number of copies made is initialized to zero, as indicated in item step 380.

Item steps 390 through 430 correspond to a loop over all selected stacked recordable disk drives 84 whereby the computer software first issues commands to the microprocessor 24 to query the hardware status of each stacked recordable disk drive 84, as indicated in item step 400. The computer software will alert the user of any stacked recordable disk drive 84 that the microprocessor 24 has identified as non-operational, as indicated in step 410. Otherwise, the computer software will set a flag indicating that the queried CD-R drive is operational, as indicated in item step 420.

Once the hardware test loop is completed, the computer software branches on a test of the number of operational stacked recordable disk drives 84, as indicated in item step 440. The computer software will exit the copy process if no stacked recordable disk drives 84 are operational, as indicated in item step 450. Otherwise, the computer software initializes to zero a variable containing the number of copies made, as indicated in item step 460.

The computer software then enters a main copy loop, indicated in item step 470, that repeats until the number of copies made equals the desired number of copies. This comparison operation is made in item step 480, and the proper termination of the copy process occurs in item step 490.

If the number of copies made is less than the number of copies desired, the computer software initializes to zero a variable containing the number of copies currently loaded in the stacked recordable disk drives 84, as indicated in item step 500. The computer software then enters an inner loop comprising item steps 510 through 580, with each cycle of the inner loop corresponding to the transfer of a blank disk to an available operational stacked recordable disk drive 84.

This inner loop begins with a comparison of the number of copies desired with the sum of the copies already made plus the number of disks loaded the current batch transfer, as indicated in item step 520. If the sum of the copies already made plus current number of disks loaded into the stacked recordable disk drives 84 equals the number of copies desired, the inner loop terminates, as indicated in item step 530.

Otherwise, the computer software issues a set of commands to the microprocessor 24 to transfer a blank disk to the next available stacked recordable disk drive 84, as indicated in item step 540. The computer software then checks the status of the disk transfer, as indicated in item step 550, and will terminate or otherwise commence other error handling subprocedures if the disk transfer failed, as indicated in item step 560. Otherwise, the variable containing the number of disks loaded is incremented by one, as indicated in item step 570.

Once the inner loop terminates at item step 580, the stacked recordable disk drives 84 have been loaded with the maximum number of blank disks, the computer software sends electrical signal instructions that activate the physical transfer of source data to each blank disk loaded in the loaded stacked recordable disk drives 84, as indicated in item step 590. The computer software then examines copy status flags from each loaded stacked recordable disk drive 84, as indicated in item step 600, and issues a command set to the microprocessor 24 to discard burned CD-R disks corresponding to any bad copy status flags, as indicated in item step 610.